Qualifications for
Prequalified List of Consultants for Locally Administered Local Public Agency (LPA) QBS Contracts
State of New Hampshire

Prepared For

William J. Oldenburg, P.E.
Assistant Director of Project Development
Chairperson, Consultant Selection Committee
New Hampshire Department of Transportation
7 Hazen Drive, P.O. Box 483
Concord, NH 03302-0483

Prepared By

Bryson T. Welch, P.E.
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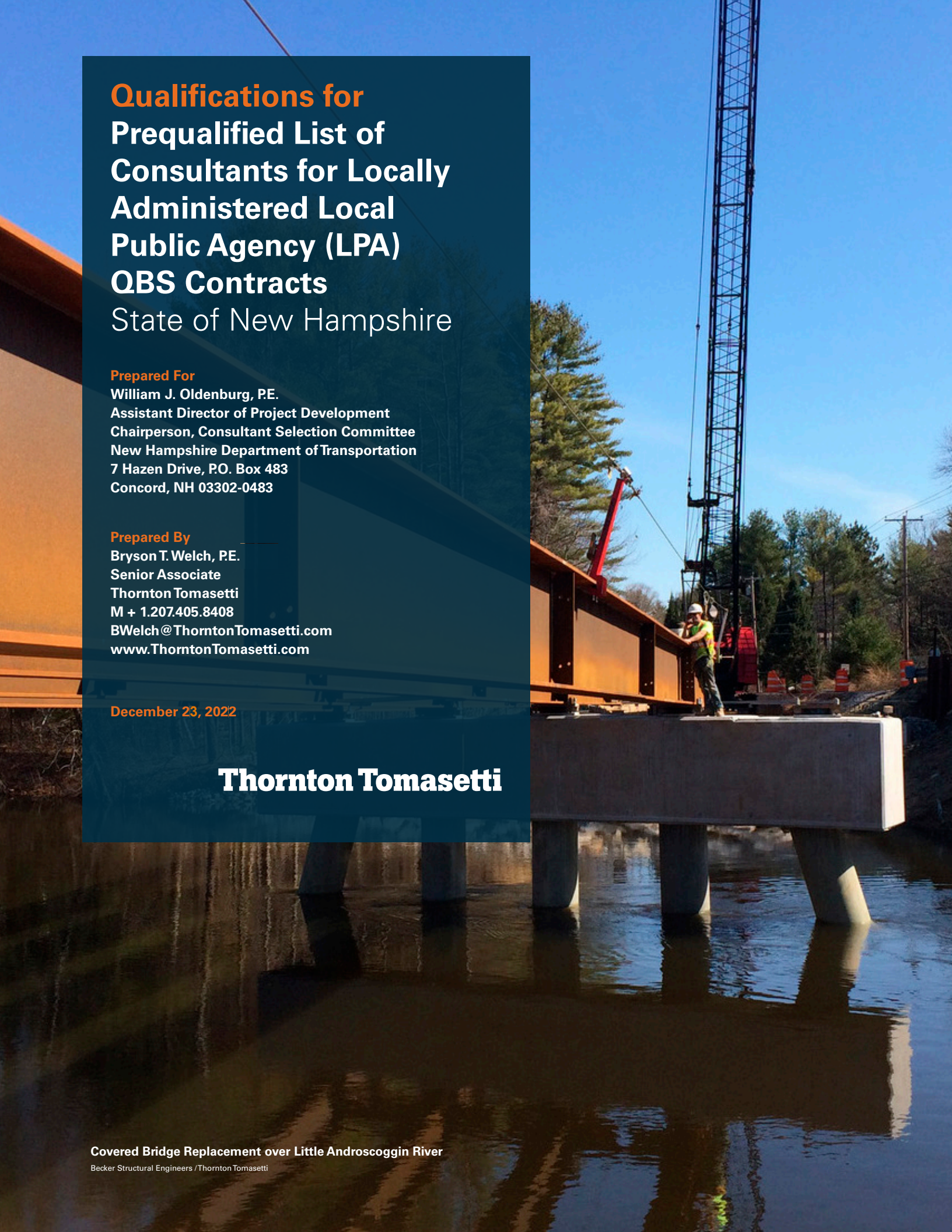
December 23, 2022

Thornton Tomasetti



Covered Bridge Replacement over Little Androscoggin River
Becker Structural Engineers / Thornton Tomasetti

Thornton Tomasetti

December 23, 2022

William J. Oldenburg. P.E.
Assistant Director of Project Development
Chairperson, Consultant Selection Committee
New Hampshire Department of Transportation
7 Hazen Drive, P.O. Box 483
Concord, NH 03302-0483

RE: PREQUALIFICATION LIST OF CONSULTANTS FOR LOCALLY ADMINISTERED LOCAL PUBLIC AGENCY (LPA) QBS CONTRACTS

Dear Mr. Oldenburg,

Please find enclosed our response to the Request for Proposals for Prequalification List of Consultants for Locally Administered Local Public Agency (LPA) QBS Contracts. Thornton Tomasetti (TT) and team members would welcome the opportunity to provide the Project Sponsor with professional engineering services for bridge design, highway design and additional work efforts in support of locally administered projects.

Roads and bridges play a vital role in our communities; they provide access to our homes and businesses. At TT we understand that every project has its own story and unique set of challenges. Our passion is the creative and collaborative process of finding successful and cost-effective solutions to those challenges for our clients.

TT is an employee owned organization of engineers, scientists, architects and other professionals collaborating from offices worldwide. The design services for your exciting project will be performed out of our Portland, Maine office of 42 employees. We have teamed with likeminded trusted partners to provide, but not limited to, the following services to the Project Sponsors:

- Bridge and highway engineering
- Environmental permitting
- Historical and Archaeological
- Subsurface investigation and geotechnical engineering services
- Hydraulic evaluation
- Construction Engineering and Inspection Services

We trust that the enclosed package will be informative. We respect your time and have kept our Qualifications concise. Feel free to contact us if you need additional information or would like to meet in person to discuss our experience and how it relates to the scope of work. Thank you for considering our proposal. We look forward to hearing from you.

Sincerely,

THORNTON TOMASETTI

Bryson T. Welch, P.E.
Senior Associate

Thornton Tomasetti

OUR PRACTICES

Structural Engineering

Construction Engineering

Forensics

Renewal

Sustainability

Resilience

Transportation

Protective Design

About Thornton Tomasetti

At Thornton Tomasetti, our work is about more than applying engineering principals to our client's projects. It's about rethinking how typical projects are accomplished to find better ways of tackling challenges--pairing a deep understanding of our clients' objectives with new angles, approaches and answers to help them go further. We work across disciplines, without silos, because we know that success is achieved through the dynamic exchange of people, perspectives and ideas. By embracing this approach, not only do we bring the forward-thinking visions of our clients' to reality, we also lay the groundwork for a better, more resilient future and make a lasting impact.

Tomasetti is an employee-owned organization of engineers, scientists, architects and other professionals collaborating from office worldwide. We offer robust engineering services by drawing on the diverse expertise of our staff and integrated practice areas.

We believe in competency and character as our defining values. We are proactive and interactive in our approach. Our dedicated staff and our investment in technology allow us to deliver high quality service on multiple large and small projects simultaneously. We set ourselves apart from other engineering firms through our enhanced quality control, dynamic staff and open communication. Implementing practical design and context sensitive solutions, we strive to design cost effective, resilient roads and bridges that are aesthetically and environmentally appropriate for the project site. Given the opportunity, we will collaborate and innovate to deliver successful projects with the Project Sponsor.

Work on the LPA assignments issued under this Contract will be performed and managed in our Portland, Maine office. We have 42 employees in our Portland office, and our local staff has over 50 years of combined transportation experience working for State DOT's and municipalities. We have assembled a team of like minded experts with experience working in New Hampshire in the fields of highway engineering, geotechnical engineering, environmental permitting, wetland science, hydrology, hydraulics, and construction administration to provide full service engineering.

- We get to the heart of every problem – digging deep to understand its intricacies and nuances, so we can help our clients achieve their goals
- For us, no task is too trivial and no aspiration to lofty. We share knowledge to create solutions that are greater than the sum of their parts, regardless of the task at hand.
- We consider out-of-the-box methods, no matter what we're working on. Here, "the way it has been done before" never limits us, when doing things differently right now means doing them better in the future.

NHDOT EXPERIENCE

Thornton Tomasetti has been working diligently on expanding our services into New Hampshire. Recently, we entered into Contract with the NHDOT for the Rehabilitation of Bridge No. 239/152, NH Route 49 over the Mad River in Thornton, New Hampshire. The existing bridge is a continuous, curved steel plate girder bridge with a reinforced concrete deck, membrane waterproofing and hot mix asphalt wearing surface. At 534 feet long, the bridge is a large and valuable asset of the NHDOT. The rehabilitation project involves replacing the concrete deck that is in poor condition, providing temporary traffic control and designing scour countermeasures.

Thornton Tomasetti

PROJECT UNDERSTANDING AND APPROACH

We understand that the NHDOT is seeking qualified firms to add to a list of Highway and Bridge Design Engineering Services consultants to be available for Local Public Agencies to short list from in the development of QBS based agreements in support of locally administered projects. The goal of this list is to facilitate the efficient selections of consultants to provide Bridge and Highway Design Engineering Services for various LPA transportation project throughout the State.

We approach each project uniquely, but systematically, while following the guidelines provided in the LPA Manual for Development of Projects. Our general approach to transportation project development starts with a site visit to gather information regarding existing conditions, project need, and site context. From there, we participate in a project start up meeting with the owner/Project Sponsor to obtain a clear understanding of their priorities and objectives. Early site visits and discussions with the owner assist us in providing cost effective solutions that meet the specific needs of the project. After evaluating alternatives, we collaborate with the Project Sponsor to select the most appropriate solution for the site during the engineering study phase. This is a critical phase during which many design issues are examined. We feel strongly that early public outreach through public informational meetings helps gather community input, build public trust, manage expectations and foster successful projects. Once the engineering study phase is completed, we finalize alignments, complete permitting, and initiate Right of Way. After final design we prepare a PS&E package consistent with NHDOT standards to be issued for construction. To manage project costs and identify potential savings, we prepare opinions of probable cost and conduct constructability reviews at each stage of design. We prioritize each constraint given the overall scope of the project and develop a solution that balances and optimizes as many of the constraints as possible. In our experience, we often see key constraints as:

- Balancing long-term durability with overall construction cost.
- Optimizing the span and corridor widths while minimizing wetland/shoreland zone impacts and providing adequate hydraulic capacity or minimizing Right of Way impacts, depending on project location and scope.
- Working with the Project Sponsor to solve maintenance of traffic challenges.
- Designing a transportation feature that complements its setting and minimizes disturbance to the landscape.

QUALITY CONTROL

Quality control is an integral component in our approach to developing accurate, consistent and complete bid documents. Our strategies to maintaining effective quality control include:

- Maintaining an experienced design team with knowledge of NHDOT standards and project development process.
- Assigning senior staff to perform independent check of project deliverables.
- Teaming with subconsultants who have a good working relationship with us and have a proven track record working on transportation projects throughout New Hampshire.

COST CONTROL

In addition to controlling design costs and quality, we are constantly striving to reduce project costs. Innovation in the areas of fabrication, erection and shipping lead to significant cost savings in bridge rehabilitation and replacement projects. Our cost saving philosophy starts early on in our design process through conversation with contractors, fabricators and manufacturers.

Key Staff Organization

PROJECT SPONSOR

New Hampshire DOT
Department of Transportation

Thornton Tomasetti

PRINCIPAL IN CHARGE

Jack Burgess, P.E.
Vice President

PROJECT MANAGER & STRUCTURAL ENGINEER

Bryson Welch, P.E.
LPA Certification #2065
Senior Associate

Elizabeth Brownell, P.E., S.E.
Senior Associate

HIGHWAY ENGINEERING & SURVEY

SEBAGO TECHNICS

Bradley Lyon, P.E.
Senior Transportation Engineer

Jacob Bartlett, PLS
Project Surveyor

Derek Caldewell, P.E., PTOE
Transportation/Traffic Engineer

Mike Kane, LPA, SPESC
Senior Inspector

Shane Kelly, P.E.
Transportation Engineer

GEOTECHNICAL ENGINEER

S.W.COLE ENGINEERING, INC.

Chad Michaud, P.E.
Senior Geotechnical Engineer

Tyler Demers, P.E.
Geotechnical Engineer

Andrew Michaud
Construction Service Manager

ENVIRONMENTAL PLANNING

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

Lee Carbonneau, NHCWS/PWS
Senior Project Manager

William McCloy, NHCWS/PWS
Project Manager

Benjamin Griffith, NHCWS
Natural Resources Task Manager

HYDROLOGY AND HYDRAULICS

NORTHSTAR HYDRO

Ellen O'Brien, C.G. P.E.
President

Nicole Buck, P.E.
Project Engineer

Our Team

Thornton Tomasetti (TT) has assembled a team of likeminded experts with extensive experience working in New Hampshire in the fields of highway engineering, environmental permitting, geotechnical engineering, wetlands science, and hydrology/hydraulics to provide full-service engineering. At TT we strive to be a seamless extension of the Project Sponsor. Our goal is to produce construction documents consistent with documents produced in-house by the NHDOT and outlined in the Local Public Agency (LPA) Manual for the Development of Projects. This approach reduces the Project Sponsor's oversight, review time, and administrative resources. Given the opportunity, we have staff that is available to begin working on your project immediately.

Sebago Technics, Inc.

Sebago Technics (Sebago) is a multi-service, employee-owned, engineering consulting firm with a staff of over 65 professionals practicing throughout northern New England. A design team led by Sebago was retained in 2017 to work with the City of Portsmouth and eight commercial developers along the Maplewood Avenue corridor to develop a new street and streetscape that complimented a new vision of City Planners and private developers within the context of their new Complete Streets Policy. For the past nine years, Sebago has been the City of Dover's On-Call Traffic Engineer – largely involved managing and reprogramming their 34 traffic signals based on real-time 24/7/365 data collection technologies. They were the Civil Engineer of Record on the Figg/Hardesty-Hanover Design Team for the new Sarah Mildred Long Bridge between Portsmouth and Kittery – which involved roadway, rail, and traffic control design. These projects have involved the feasibility of using staged construction (alternating one-way traffic) versus the use of temporary roadway closures with detours.

S.W. Cole

Established in 1979, S.W. Cole has nine offices throughout New England. They provide services in geotechnical engineering, geoenvironmental engineering, and construction material testing. With a team of over 110 engineers, scientists and technicians, they provide services on over 1,800 projects annually. S.W. Cole's 40 years of experience and many regional offices allow them to work with a wide variety of clients, including government agencies, architectural and engineering firms, contractors, healthcare providers, educational and commercial clients. They take a hands-on approach and understand they impacts of the subsurface conditions on construction budgets and schedules. They have a proven track record assisting owners, design teams, and construction teams in completing successful projects.

As a geotechnical engineering, geoscience consulting and construction materials testing firm, S.W. Cole serves clients' needs with a multi-disciplined staff of professional engineers and scientists as well as laboratory and field testing services. Their clients have come to rely on our professional expertise and our ability to assist in providing project efficiency and compliance with design concepts and specifications.

Normandeau Associates

Normandeau is one of the largest and most capable science-based environmental firms in New England with over 150 environmental professionals. Normandeau has nine offices in New England, including two in New Hampshire. Normandeau has extensive experience in completing complex National Environmental Policy Act (NEPA) projects, a variety of wetlands, wildlife and water resources-related field work, writing cost effective, scientifically sound reports and development of assessment protocols, schedules, and budgets to meet the requirements of federal, state, and local agencies.

Normandeau staff have been involved in all aspects of road, bridge, airport, and port projects. They provide environmental science, planning, permitting, and public involvement service to address increasingly complex issues surrounding the development and improvement of multimodal transportation options.

Northstar Hydro

Northstar Hydro, founded in 1994, is a small consulting engineering firm specializing in hydrologic and hydraulic engineering applications. Located in Winthrop, Maine and Hartland, Vermont, Northstar is certified as a DBE/WBE in Maine, Vermont, New Hampshire, Rhode Island and Massachusetts. Northstar Hydro believes infrastructure in harmony with the natural environment is not only aesthetic but more resilient. By first considering the water and how it flows, our design recommendations are strengthened by integrating structures with the natural tendencies of fluvial and tidal systems.

Northstar Hydro is leader in understanding the complex interactions between transportation infrastructure and the river environment. Northstar works with structural bridge consultants throughout New England. Northstar has also provided direct consulting services to MaineDOT and VTrans and various municipalities. Their transportation projects range from hydraulic modeling of large interstate bridges to hydraulic design of smaller culverts on dirt roads and trails. In every project Northstar applies state of the art hydrologic and hydraulic modeling techniques.

Staff Members

Below is a table of staff members that will likely work on projects and the role they will provide during projects. Please see resumes in the Appendix for additional information about staff members.

HIGHWAY AND BRIDGE DESIGN ENGINEERING SERVICES IN SUPPORT OF LPA PROJECTS

Firm	Key Personnel	Project Role	Years of experience	Years with Firm	LPA Certified in New Hampshire	Project Management	Highway Design	Bridge Design	Structural Engineer	Alternate Procurement Methods	Corridor Study Planning	Bridge Inspection	Bridge Load Rating	Hydrology	Environmental	Traffic Analysis	Geotechnical Engineer	Surveyor	Public Involvement	Construction Manager
Thornton Tomasetti																				
	Jack Burgess, PE	Project Executive and QC/QA	37	15		■		■	■			■	■						■	
	Bryson Welch, PE	Project Manager	24	17	■	■		■	■			■	■						■	
	Elizabeth Brownell. PE	Structural Engineer	15	9		■		■	■			■	■						■	
	Steven Knowles, PE	Project Engineer	8	6				■	■				■							
Sebago Technics																				
	Bradley Lyon, PE, PTOE	Project Manager	16	16	■	■	■			■	■					■			■	
	Derek Cladwell, PE, PTOE	Transportation/Traffic Engineer	14	6	■		■				■					■				
	Shane Kelly, PE	Transpiration Engineer	8	6			■									■				
	Jacob Bartlett, PLS	Project Surveyor	13	6														■		
	Michael Kane, LPA, CPESC	Senior Inspector	42	14																■
S.W. Cole																				
	Chad Michaud, P.E.	Senior Geotechnical Engineer	25	23													■			
	Tyler Demers, P.E.	Geotechnical Engineer	11	11													■			
	Andrew Michaud	Construction Service Manager	23	23																■
Normandeau Associates																				
	Lee Carbonneau, PWS/NHCWS	Wetland Scientist/Wildlife Biologist	41	33											■					
	William McCloy, PWS, NHCWS	Senior Wetland Scientist	18	13											■					
Northstar Hydro																				
	Ellen O'Brien, CG, PE	Hydrologist/Engineer	37	28										■						
	Nicole Buck, PE	Hydrologist/Engineer	24	7										■						

References

Cotton Mill Bridge over Royal River, Yarmouth, Maine

Thornton Tomasetti/ Becker Structural Engineers performed an investigation of the structural supports for the sewer main on the Cotton Mill Bridge in the Town of Yarmouth. Work included evaluation and analysis of the existing supports for the preparation of rehabilitation plans and specifications. Coordination with the MaineDOT was performed to verify the sewer supports didn't interfere with the proposed bridge rehabilitation that was performed the year following the support installation.

Reference: Steve Johnson, P.E.
Town Engineer, Town of Yarmouth, ME
(207) 846-2401; SJohnson@yarmouth.me.us

Route 9 Traffic Signal Improvements, Somersworth, New Hampshire

Sebago Technics is currently designing traffic signal improvements at six intersections along Route 9 (High Street) in Somersworth as an NHDOT CMAQ funded LAP. This nearly $730,000 project involves installing new ATC traffic signal control equipment, video vehicle detection, emergency pre-emption, and ADA compliant crosswalk ramps. In addition, these six intersections will be operated by a new central management software located on the City's network server. During the preparation of the Engineering Study Sebago was able to negotiate additional safety funds for this project as a community "pilot" for the use of reflectorized backplates on the signal heads. The Engineering Study and NEPA certification is complete, and we are currently awaiting authorization to commence Preliminary Design. PS&E is scheduled for December 2020, with advertisement in early 2021.

Reference: Michael Bobinsky
Director of Public Works and Utilities, City of Somersworth, NH
(603)692-4266; mbobinsky@somersworth.com

Kenduskeag Stream Pedestrian Bridge, Bangor, Maine

Thornton Tomasetti/Becker Structural Engineers performed a condition assessment of the existing Kenduskeag Stream Pedestrian Bridge. The City of Bangor raised concerns of the condition of the bridge due to the broad deterioration of the structure. The bridge carries pedestrian traffic over the Kenduskeag River from Pickering Square to Exchange Street. Built circa 1980, the bridge is 20'-0" wide and has five spans with a total length of 409'-0". The bridge superstructure consists of precast prestressed concrete single tee beams and a cast-in-place concrete wearing surface. A field investigation was conducted to review of the bridge components and collect samples for chloride ion, petrographic analysis, and compression strength testing. Due to the high levels of chlorides and carbonation in the existing tee beams a rehabilitation matrix of various rehabilitation options was provided to the City; including rehabilitation of the superstructure, replacement of the superstructure, and removal of the bridge.

Reference: John Theriault, P.E.
City Engineer, City of Bangor, ME
(207) 992-4249; john.theriault@bangormaine.gov

Thornton Tomasetti

Appendix - Resumes

Bridge Team Leadership

Jack A. Burgess, P.E.
Vice President

Jack Burgess joined Becker Structural Engineers in 2007, which was acquired by Thornton Tomasetti in April 2019 and has more than thirty years of experience in the State of Maine. He has been designing bridges for the MaineDOT as a consulting engineer for over twenty years. He recently served on the MaineDOT Chief Engineer's "Keeping Our Bridges Safe" task force. His bridge experience includes preliminary and final designs of bridges ranging from buried structures to multi-span river crossings. He has designed and detailed steel and prestressed concrete superstructures as well as integral abutment, pile supported deep abutment, mass pier and pile bent pier substructures. His experience includes preparation of special provisions, hydraulic analyses, load ratings, maintenance of traffic studies and stage construction plans. His current responsibilities include proposal writing and project management of bridge projects with the MaineDOT and local municipalities.

Bryson T. Welch, P.E., S.E.
Senior Associate

Bryson Welch joined Becker Structural Engineers in 2005, which was acquired by Thornton Tomasetti in April 2019. He brings more than eighteen years of experience and has designed bridges for the MaineDOT, NHDOT, VTrans, municipalities and private owners as a consulting engineer. His bridge experience includes preliminary and final design of bridges including multi-span river crossings and interstate overpasses utilizing phased construction. He has performed bridge inspections and ratings, including Statewide Bridge Load Ratings for MaineDOT. Additional work for the MaineDOT includes the Union Street Replacement Bridge over I-95, Soucy Bridge Replacement over Perley Brook and the Memorial Bridge Deck Replacement over Piscataquis River.

Elizabeth S. Brownell, P.E., S.E.
Senior Associate

Elizabeth Brownell joined Becker Structural Engineers in 2011, which was acquired by Thornton Tomasetti in April 2019. She brings more than 13 years of experience and has held positions in both the public and private sectors. She has experience designing bridges and preparing construction bid documents for MaineDOT, MassDOT, and private owners. Her bridge design experience ranges from new construction to rehabilitation and preservation. Liz has designed and detailed with steel, cast-in-place concrete, precast/prestressed concrete, and composite materials. She has performed bridge load ratings and inspections across the state of Maine. Recent projects include preservation of the over 2000-foot long cable stayed Penobscot Narrows Bridge connecting Verona Island to Prospect, Maine and replacement of the Staples Bridge in North Berwick, Maine.

BRADLEY R. LYON, PE, PTOE

Director of Transportation Services

Mr. Lyon joined Sebago Technics in 2006 as a graduate from the University of Maine with a B.S. in Civil Engineering. Since joining the firm he became licensed as a Professional Engineer in the states of Maine, New Hampshire and Vermont as well as becoming licensed as a Professional Traffic Operations Engineer. He was also responsible for developing Sebago's Traffic Operations practice in 2008, which bridges the gap between traditional traffic engineers and contractors, allowing for engineered solutions to be implemented and examined directly in the field.

Mr. Lyon now serves as the Director of Transportation Services where he is responsible for managing the Transportation team's resources, administering the QA / QC program and assisting with design efforts on the firm's more complex projects. He is also heavily involved throughout the industry in New England, actively serving as the Vice President of the Maine Chapter of the Institute of Transportation Engineers, providing lectures on traffic signal operations for both NHDOT and VTrans as well as participating with the MaineDOT in the development of the Traffic Mobility Report.

CERTIFICATIONS

IMSA Work Zone Temporary Traffic Control Technician (Cert # ZZ_118440)
IMSA Traffic Signal Technician Level I (Cert # AA_118440)
IMSA Traffic Signal Design/Engineering Technician Level II (Cert #BD_118440)
IMSA Traffic Signal Construction Technician Level II (Cert #BC_118440)
IMSA Traffic Signal Field Technician Level II (Cert #BE_118440)

REGISTRATIONS

Professional Engineer:
ME #12632; NH #13819; VT #109886

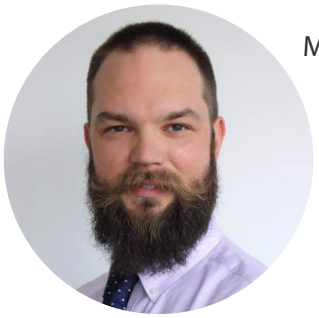
Professional Traffic Operations Engineer #3217

EDUCATION

University of Maine
Orono, ME
B.S., Civil Engineering, 2006

JACOB I. BARTLETT, PLS

Project Surveyor



Mr. Bartlett joined Sebago Technics, Inc. in 2016 as a Project Surveyor. Mr. Bartlett graduated with a Bachelor of Science in Surveying Engineering Technology from the University of Maine, and now holds registrations in multiple states with over seven years of experience. He has worked for New England based surveying firms on a wide variety of survey assignments, with the bulk of his experience in boundary retracement and resolution. Mr. Bartlett grew up in the White River Junction area in Vermont and currently lives in Limerick.

REGISTRATIONS

Professional Land Surveyor
Maine #2513
New Hampshire #1003
Vermont #109448

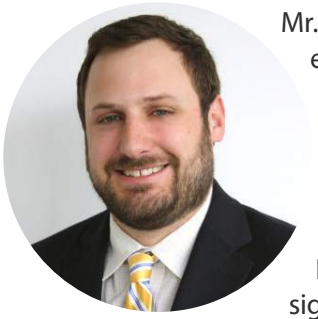
EDUCATION

Bachelor of Science,
Surveying Engineering Technology
Minors: Construction Management
Technology, Engineering
Entrepreneurship
University of Maine, Orono, ME
2009

207.200.2068 BLYON@SEBAGOTECHNICS.COM

DEREK H. CALDWELL, PE, PTOE

Transportation/Traffic Engineer



Mr. Caldwell joined Sebago Technics in 2016 as a Transportation/Traffic Engineer. He was previously employed by the Massachusetts Department of Transportation as a Traffic Engineer in the District Four office. Derek is a graduate of Worcester Polytechnic Institute with a B.S. in Civil Engineering and also has a M.S. in Transportation Engineering from the University of Massachusetts – Lowell. He is a licensed Professional Engineer in the states of Maine, Massachusetts, New Hampshire and Vermont as well as being licensed as a Professional Traffic Operations Engineer.

He is largely responsible for all traffic impact studies and is also involved in traffic signal design, traffic signal operations, intersection design and planning studies where he is able to use his experience in advanced traffic modeling techniques through the software packages of VISSIM and Synchro/SimTraffic.

REGISTRATIONS

Professional Engineer:
ME #14400; MA #52626; NH #15272;
VT #127175

CERTIFICATIONS

NHDOT Local Public Agency (LPA) Certification
ACI Concrete Field Testing Technician – Grade I
NETTCP Concrete Inspector
IMSA Work Zone Temporary Traffic Control Technician (Cert # ZZ_119807)
IMSA Traffic Signal Technician Level I (Cert # AA_119807)
MSA Traffic Signal Design/Engineering Technician Level II (Cert #BD_119807)
IMSA Traffic Signal Construction Technician Level II (Cert #BC_119807)
IMSA Traffic Signal Field Technician Level II (Cert #BE_119807)

EDUCATION

Worcester Polytechnic Institute
Worcester, MA
B.S., Civil Engineering, 2008

University of Massachusetts - Lowell
Lowell, MA
M.S., Civil Engineering - Transportation, 2013

MICHAEL C. KANE, LPA, CPESC

Senior Inspector

Mr. Kane is Sebago Technics' Senior Inspector and will be Sebago Technics' field lead in providing Quality Assurance (QA) and Quality Control (QC) measures and that they are being conducted appropriately in accordance with MDOT Local Adminstrated Project procedures. As Senior Inspector for Sebago Technics, Mike brings over 40 years of construction experience to the firm. Working with his family's business, Glidden Paving, for over 30 years, he learned the earthwork business from both the labor and management perspectives. He has operated a wide array of the heavy equipment used in site preparation today and has a strong working knowledge of budget preparation, scheduling, and plan interpretation.

Previously an Assistant Superintendent for the Westbrook School Department, Mike performed the role of owner's representative for all school-related construction projects for the district, ranging from renovating and constructing complete school facilities to the construction of new athletic complexes. His current position with Sebago Technics has included diverse assignments that have varied from road construction, to artificial athletic field turf installation, to an island barge landing.

CERTIFICATIONS

Maine DOT – Local Project Administration (LAP)
Certification: May 2008
Recertification: April 2019

Certified Professional in Erosion and Sedimentation Control
Maine No. 0694

Certified Erosion, Sediment and Storm Water Inspector
National No. 0385

New England HMA Paving Inspector Certification
NETTCP No. 2655

207.200.2053 DCALDWELL@SEBAGOTECHNICS.COM

S.W.COLE ENGINEERING, INC.

Our Clients Make Better Decisions
From the Ground Up.

Chad B. Michaud, P.E.
Executive Vice President
Chief Operating Officer
Senior Geotechnical Engineer

Education:
B.S., Civil Engineering,
University of Maine

GBA Fundamentals of
Professional Practice Course

Registrations:

Professional Engineer (P.E.),
New Hampshire, Maine,
Connecticut, Massachusetts,
Vermont and Rhode Island

Affiliations:

American Council of Engineering
Companies (ACEC)

GBA Professional Firms
Practicing in the Geosciences

Public Service:

Board of Directors, Barrington
Youth Association

Environmental Technical
Advisory Board, Creteau Career
and Technical Center, Spaulding
High School

Youth Baseball, Softball, and
Soccer Coach

Chad Michaud went to Stearns High School in Millinocket, Maine before attending the University of Maine in Orono, Maine. Chad joined S. W. Cole Engineering, Inc. in 1999 as a Geotechnical Engineer. His duties progressed to a project manager and senior geotechnical engineer.

Chad has served on the Board of Directors since 2009. In 2014, he was named Executive Vice President and Chief Operating Officer of the firm. His responsibilities in these roles include corporate management, branch office management, project management training and mentoring, and corporate level oversight of operational functions such as health and safety, human resources and information technology.

Chad's responsibilities with the firm as a Senior Geotechnical Engineer are to manage projects, service clients, provide contract development, coordination of subcontractors and subconsultants, and oversee a staff of geotechnical engineers providing coordination of subsurface investigations and geotechnical design and specifications. Chad has experience providing soils engineering services on a variety of projects including multi-story mixed use commercial buildings, roadways, state and municipal bridges, airports, wastewater and water treatment facilities and lagoons, gas pipelines, municipal buildings, schools, towers, and large retail facilities and industrial structures in New Hampshire, Maine, Connecticut, Vermont, Massachusetts and Rhode Island.

Chad has significant experience providing geotechnical evaluation and global stability analyses for segmental mechanically stabilized earth (MSE) retaining walls and earth embankment slopes. Chad has been involved with many projects requiring a review of slope failures and the development of alternatives for reconstruction.

Chad has experience with field testing and evaluation of various stormwater infiltration testing techniques such as double-ring infiltrometer, Guelph permeameter, and borehole falling head methods.

In his free time, Chad can be found coaching youth sports, spending time with his family, on a mountain bike ride, or occasionally enjoying a craft beer.

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

LEE E. CARBONNEAU, PWS/NHCWS
Wetland Scientist/Wildlife Biologist

Ms. Carbonneau is a wetland scientist and wildlife biologist with over 30 years of experience assessing terrestrial and wetland communities throughout the northeastern United States. As a senior project manager, she is responsible for providing ecological services for clients in the energy, transportation, site remediation, and development sectors, with particular emphasis on large-scale and complex undertakings. Ms. Carbonneau also provides third-party expertise to state and local resource agencies. Her skills include wetland delineation and assessment, mitigation design, wildlife survey, habitat assessment, and state and federal natural resource permitting in both inland and estuarine environments. Ms. Carbonneau is vice-chair of Normandeau's Transmission Client Service Group and supervises the Wildlife Scientist staff assigned to Normandeau's corporate headquarters in New Hampshire.

EDUCATION

M.S., Wildlife Ecology, University of New Hampshire

B.S., Forest Biology, SUNY College of Environmental Science and Forestry, Magna cum laude

PROFESSIONAL EXPERIENCE

1989-Present	Normandeau Associates
1986-1989	The Smart Associates
1985-1986	Environmental Consultant
1983-1985	University of New Hampshire
1982	EIP Northeast and The Nature Conservancy
1981	The Nature Conservancy-Lower Hudson Chapter

PROFESSIONAL CERTIFICATIONS

- Professional Wetland Scientist #882
- NH Certified Wetland Scientist #123
- Maine DIFW Credentialed Vernal Pool Observer

WILLIAM S. MCCLOY, PWS, NHCWS
Senior Wetland Scientist

Mr. McCloy is a Professional Wetland Scientist and New Hampshire Certified Wetland Scientist with fifteen years of experience working on projects throughout New England. He has technical experience in wetland delineation, wetland function and value assessment, vernal pool ecology, riverine assessments, wetland and riparian mitigation and restoration design, and technical report writing. Mr. McCloy also has experience permitting wetland and stream impacts in compliance with regulations and policy guidance administered by the Vermont Department of Environmental Conservation (VTDEC), New Hampshire Department of Environmental Services (NHDES), Maine Department of Environmental Protection (MEDEP), and U.S. Army Corps of Engineers Section 404 program across New England. Mr. McCloy has contributed to and helped prepare submittals for projects subject to the Vermont Public Service Board Section 248 and the Act 250 Permit processes; along with projects associated with the New Hampshire Site Evaluation Committee (NH SEC) process.

Mr. McCloy is a detail oriented and adaptive team player with a diverse skill set that also includes project management, GIS mapping, modeling and analysis, construction oversight and erosion control monitoring, and regulatory coordination. He has been a part of many high-profile projects that have required precise coordination between other members of the project team, clients, municipalities, regulatory agencies, and the general public.

EDUCATION

M.E.M., Environmental Health and Security, Duke University Nicholas School of the Environmental and Earth Sciences

B.A., Biology, Colby College

PROFESSIONAL EXPERIENCE

2009-Present	Normandeau Associates
2008-2009	Vanasse Hangen Brustlin
2005-2007	Pioneer Environmental Associates
2004	Clean Water for North Carolina (Summer Intern)
2003-2004	Duke University Forest (Assistantship)

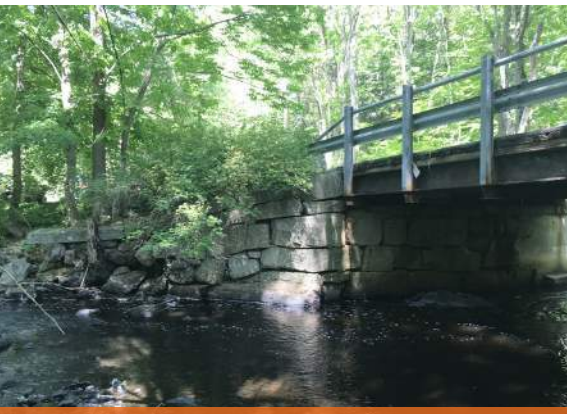
PROFESSIONAL CERTIFICATIONS

- Professional Wetland Scientist (#2225) - The Society of Wetland Scientists
- Certified Wetland Scientist (#268) – New Hampshire Joint Board of Licensure and Certification
- Maine DIFW Credentialed Vernal Pool Observer

PROFESSIONAL AFFILIATIONS

- New Hampshire Association of Natural Resource Scientists (NHANRS)

Appendix – Applicable Work Experience



Staples Bridge over Great Works River

I-395 over Webster Avenue Pedestrian Tunnel

Mill Bridge over Mill Creek

Covered Bridge over Little Androscoggin River

Experience

MAINE DOT, STAPLES BRIDGE OVER GREAT WORKS RIVER • North Berwick, Maine

Bridge design services for the replacement of a ninety-year-old bridge. After exploring closures, construction alternatives and detours, the design team designed a 48-foot-long replacement structure downstream with traffic maintained on the existing bridge. The project implemented detail-build design alternatives to facilitate optimal bids.

MAINE DOT, I-395 BRIDGE REPLACEMENT OVER WEBSTER AVENUE • Bangor, Maine

Bridge engineering services for the replacement of a three-span bridge with a pedestrian / bicycle tunnel. Scope of services included developing plans, specification and estimates for the design of the structure while maintaining traffic flow above. Accelerated bridge construction techniques were utilized to replace the existing bridge while limiting the complete closure of I-395 to 65 consecutive hours.

MAINE DOT, MILL BRIDGE OVER MILL CREEK • Isleboro, Maine

Bridge design services for a replacement bridge in an environmentally-sensitive and remote site. The work required close coordination with contractors and ferry and transport companies to overcome challenges related to constructability and shipping. The team recommended one crane transported by ferry to drive piles and erect beams. Design included re-use of granite block abutments that allowed for a shorter span and the use of shallow depth precast voided slabs. Scope included detailing of alternative precast and cast-in-place concrete elements to ensure lowest bid packages. Ultimately, the bridge was closed for only 10 weeks and the low bid was 10 percent below estimate.

MAINE DOT, COVERED BRIDGE OVER LITTLE ANDROSCOGGIN RIVER • Oxford, Maine

Bridge design services for the replacement of a timber covered bridge. The two-span bridge was constructed on a realignment to accommodate increased use and maintain traffic on the existing bridge during construction. The substructure consists of weathering steel plate girders, integral abutments and a post-tensioned, rock-socketed pile bent pier to alleviate scour concerns and resist heavy ice loads.

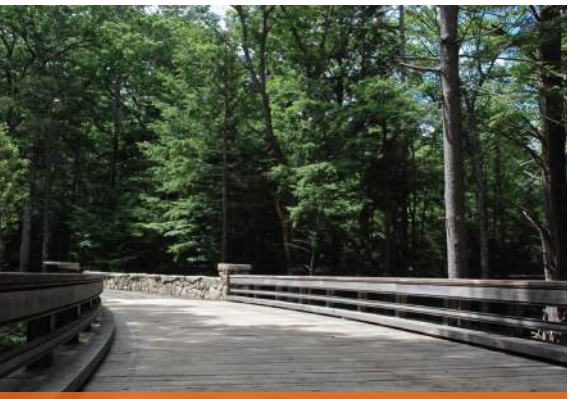
MAINE DOT, SOUCY BRIDGE CULVERT REPLACEMENT OVER THIBODEAU BROOK • Grand Isle, Maine

Bridge engineering services for a new,144-foot-long precast concrete box culvert with sloped ends and a 22-foot span to replace a culvert on the list of structurally deficient bridges. Scope included an analysis of the existing and proposed culverts using HY-8 for flows up to Q500 as well as design of a two-foot special fill in the culvert to provide stability and allow fish passage.

MAINE DOT, GREENLAW BROOK BRIDGE CULVERT REPLACEMENT OVER GREENLAW BROOK • Limestone, Maine

Preliminary design for the replacement of the corrugated metal pipe culvert. The existing culvert had a condition rating of four and exhibited deformation, scour holes, and perched inlets and outlets. Designing for habitat connectivity at this location was challenging due to the excessive grade separation at the site. The streambed was approximately 25 feet below the roadway and bedrock approximately 80 feet below the roadway, making many structural alternatives very costly. The proposed structure is a precast concrete box culvert with a 24-foot-span and 12-foot-rise installed in two halves to facilitate installation of special fill and grade control within the box culvert.

Greenway Pedestrian Bridge



Private Residence Bridge

Kenduskeag Stream Pedestrian Bridge

Kenduskeag Stream "At Grade" Pedestrian Bridge

Experience (continued)

COTTON MILL BRIDGE OVER ROYAL RIVER • Yarmouth, Maine
Structural engineering services to investigate the structural supports for the sewer main on the Cotton Mill Bridge in the Town of Yarmouth. Work included evaluation and analysis of the existing supports for the preparation of rehabilitation plans and specifications. Coordination with the MaineDOT was performed to verify the sewer supports did not interfere with the proposed bridge rehabilitation that was performed the year following the support installation.

MAINE DOT, MEDDYBEMPS BRIDGE OVER DENNY'S RIVER • Meddybemps, Maine
Bridge design services to replace a rigid concrete frame structure with a 78-foot-span weathering steel girder superstructure with a curved concrete deck. To increase durability and service life of the structure, the design team used GFRP reinforcing in the bridge deck and a jointless integral abutment substructure. Challenges included providing temporary support of excavation in order to maintain traffic during construction with shallow bedrock at the site and tight horizontal clearances between the existing and proposed roadway alignments.

KENDUSKEAG STREAM PEDESTRIAN BRIDGE • Bangor, Maine
Condition assessment of the pedestrian bridge that spans Pickering Square to Exchange Street to assess the deterioration of the structure for the City of Bangor. Built circa 1980, the bridge is 20 feet wide and has five spans with a total length of 409 feet. The superstructure consists of precast prestressed concrete single tee beams and a cast-in-place concrete wearing surface. The team investigated the bridge components and collected samples for chloride ion, petrographic analysis and compression strength testing. A rehabilitation matrix of various options was provided that evaluated rehabilitation of the superstructure, replacement of the superstructure, and removal of the bridge.

KENDUSKEAG STREAM "AT GRADE" PEDESTRIAN BRIDGE • Bangor, Maine
Condition assessment of the nine-foot-wide single span, 81-foot-long "at grade" pedestrian ridge built circa 1961 for the City of Bangor. The bridge superstructure consists of three butted precast prestressed concrete box beams with a variable depth non-composite cast-in-place concrete wearing surface. Scope entailed a field investigation to review of the bridge components and collect samples for chloride ion, petrographic analysis, and compression strength testing. Concrete repairs to advanced areas of deterioration and to interrupt the infiltration of chlorides was recommended.

PRIVATE RESIDENCE BRIDGE • Camden, Maine
Bridge design services for a 52-foot-6-inch span, curved steel girder bridge with a timber deck. The challenge to design an elegant structure that complemented the landscape while holding up to the harsh Maine elements was achieved through native material selection and careful attention to detail. The materials used for the bridge include steel for its strength, wood for its warmth and stone for its integrity.

GREENWAY PEDESTRIAN BRIDGE • South Portland, Maine
Structural engineering services through schematic design for the City of South Portland for a gateway pedestrian bridge spanning across a major intersection that divides the Greenbelt pedestrian and bicycle trail. The project included site visits to determine existing conditions and identify project constraints, preliminary design to determine feasibility, renderings to communicate the city's vision, and facilitating design charrettes to educate stakeholders and gather public input.

Sebago Technics is a 70-person employee owned multi-disciplined engineering, survey, and landscape architecture firm located in South Portland, Maine. Our award-winning Transportation Group is a full-service Team with a diverse background in all facets of transportation and traffic engineering. Our projects span the spectrum from preparing small Traffic Impact Studies for private developers to performing highway design support of large-scale bridge projects for state DOT's. More specifically, our service lines include:

- Traffic Engineering Assessments, including Existing Corridor Evaluations
- Roadway and Intersection Design
- Pedestrian and Bicycle Planning and Design
- Traffic Signal and Signal System Design and Operations

We have on-going relationships with state-level Departments of Transportation in Maine, New Hampshire, and Vermont. Recent projects in New Hampshire have included the following:

- Redesign of Maplewood Avenue, Portsmouth
- Redesign of Lower Central Avenue, Dover
- Redesign of the Intersection of 6th and Venture, Dover
- Upgrade of 6 traffic signals along Route 9, Somersworth, NH – an LPA and CMAQ funded project
- Evaluation of 4 coordinated traffic signals of Columbus Ave, Rochester
- Design and Operation of Dover's centralized Traffic Signal Management System
- Design of Traffic Signal Improvements, Keene
- Design of Traffic Signal Improvements, Merrimack – a NHDOT project
- Route 108 South Corridor Study, Dover
- Deployment of NH's first Connected Vehicle Project Research, Dover – NHDOT & UNH funded project
- Deployment of NH's first Automated Traffic Signal Performance Measures for signal operations, Dover – FHWA and City funded project
- Race Day Traffic Control Planning for NHMS, Loudon
- Traffic Study for new multi-use development, North Conway
- Design of both highway and railroad approaches to the new Sarah Mildred Long Bridge – Portsmouth/Kittery

For a small group of six engineers, our Transportation Team, has skills far exceeding their depth. All members are multi-talented, which is unique for our industry and allows us to be extremely responsive to our client's needs. All of our staff are licensed professional engineers, with half of them being NH PE's. We also have a member who is NH LPA certified.

The Group is led by two senior engineers with over 60 years of experience to guide our practice. Stephen Sawyer, PE and Bradley Lyon, PE, PTOE are both known at NHDOT, and in particular, familiar faces to a number of Sea Coast communities. Supporting this talented Group are a number of in-house ancillary services, such as:

- NH Licensed Field Survey – topographic and boundary, as well as construction layout
- Natural Resource Identification
- Environmental Site Assessments
- Construction Administration and Inspection

S.W.COLE ENGINEERING, INC.

Our Clients Make Better Decisions
From the Ground Up.

Selected Bridge Project Experience

We offer the following partial list of bridge projects on which we have provided geotechnical engineering services.

- Smith River Bridge Replacement, Hill, NH
- Bay Road Bridge, Farmington, NH
- Ten Rod Road Bridge Replacement, Farmington, NH
- Washburn Road Bridge Replacement, Alexandria, NH
- South Gale Road Bridges Replacement, Bethlehem, NH
- Boroughs Road Bridge Replacement, Hill and Bristol, NH
- Chesley Hill Road Bridge Replacement, Rochester, NH
- Towle Brook Bridge Replacement, Chester, NH
- Twin Culvert Replacement, Amherst, NH
- Bogle Brook Bridge Replacement, Peterborough, NH
- Amherst Road Culvert Replacement, Merrimack, NH
- Hoadley Road Culvert Replacement, Belmont, NH
- Western Avenue Bridge Replacement, Henniker, NH
- Willow Street Bridge, Pelham, NH
- Wire Road Bridge Replacement, Merrimack, NH
- Bedford Road Bridge Replacement, Merrimack, NH
- McGraw Bridge Replacement, Merrimack, NH
- Innovation Drive Bridge (Over Northcoast Rail Road), Granite State Industrial Park, Rochester, NH
- Dewey Street Pedestrian Bridge over Cocheco River, Rochester, NH
- Clarks Pond Road over Clark Brook, Haverhill, NH
- Harvey Swell Road over East Branch Mohawk River, Colebrook, NH
- Bear Rock Road over East Branch Mohawk River, Colebrook, NH
- West Street over Great Brook, Antrim, NH
- Pleasant Valley Road Bridge, Wolfeboro, NH
- Birch Hill Road Culvert Replacement, York, ME
- Josiah River Culvert Reconstructions, York, ME
- New Biddeford Road Culvert Replacements, Kennebunkport, ME

Chesley Hill Road Bridge After Reconstruction
Rochester, New Hampshire

Birch Hill Road Culvert Replacement
York, Maine

Northstar Hydro Transportation Crossing Experience

Northstar Hydro is leader in understanding the complex interactions between transportation infrastructure and the river environment. Northstar works with structural bridge consultants throughout New England. Northstar has also provided direct consulting services to MaineDOT and VTrans and various municipalities. Our transportation projects range from hydraulic modeling of large interstate bridges to hydraulic design of smaller culverts on dirt roads and trails. In every project Northstar applies state of the art hydrologic and hydraulic modeling techniques.

Ellen O'Brien, PE, Principle and Nicole Buck, PE Senior Engineer are involved in every project Northstar tackles including client meetings, field visits, hydraulic modeling and data analysis, and QA/QC. The following is a sample of recent projects.

North Pembroke Road over the Soucook River – Concord/Pembroke, NH: Conducted H&H analysis for preliminary bridge design using HEC-RAS and USGS gage data. The site was located just below a large bend in the river creating complex overbank flow patterns. The final model was successfully validated using the upstream gaging station. Scour potential at the location is improved with the removal of the existing instream piers. Client: HDR, Inc.

Alder Brook Culvert Replacements – Richford, VT: Evaluated multiple alternatives for the replacement of two undersized culverts on the same stream to improve fish passage and restore streambed. Alternatives were analyzed in HEC-RAS. Preferred culverts were installed weeks before a flood of record and sustained little damage. Client: The Nature Conservancy and the Town of Richford, VT.

VTrans Hydraulic Studies – Throughout Vermont: Conducted numerous Hydraulic Studies for the VTrans Hydraulics Unit related to replacement of undersized Town-owned culverts throughout the State. Studies include an analysis of fluvial geomorphology, hydrology, hydraulic design and crossing sizing, fish passage, scour and sediment transport. Client: VTrans Hydraulics Unit.

I-91 Brattleboro and Rockingham, VT:
Hydrologic/Hydraulic and Scour design for two design-build projects on I-91 in Vermont, including new bridges over the Williams and West Rivers in Rochester and Brattleboro, Vermont.